STA-RITE®

SR6000S
POOL / SPA
CONTROLLER

Software Version
SR6000S Release A1
Feb. 28, 2003

INSTALLATION & OPERATION GUIDE

STA-RITE INDUSTRIES

293 Wright Street
Delavan, WI 53115
Ph (800) 752-0183

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SAFETY PRECAUTIONS

PLEASE READ THIS USER MANUAL completely before installing or operating the equipment. The SR6000S is a Class 1 product for protection against electric shock and a Type 1 product with regards to disconnection of the control circuits.

Be sure to observe the following safety precautions:

– Do not permit anyone untrained or under the age of 18 to use this product.

– Unit must be properly connected to earth ground.

– Never apply power when front panel is not secured in the closed position.

– Never service unit with power applied, always turn OFF main circuit breaker to unit and all equipment when servicing.

– Do not disassemble. Touching the controller's internal parts could result in injury. In case of a malfunction, only a qualified technician should repair the controller.

– Risk of Electric Shock. Connect only to a grounding type receptacle protected by a ground-fault circuit interrupter (GFCI). Contact a qualified electrician if verification on the receptacle is not protected by GFCI.

– Do not bury cord. Route cord to eliminate abuse from heater exhaust, lawn mowers, hedge trimmers, and other equipment.

– Be careful not to damage any of the cord insulation. Should the cord be damaged, return it to your dealer for a replacement. Continued use could result in fire or electric shock.

– To reduce the risk of electric shock, do not use an extension cord to connect unit to electric supply; provide a properly located GFCI.

– Never remove or install any cables between the circuit cards when power is applied, damage to the components may occur.

WARNING: DANGER - CHEMICAL BURN HAZARD - *If possible, make sure pumps are OFF before drilling into pipes. Securely fasten all electrical, water and chemical lines. Locate chemical feed pumps and chemical storage tanks in a safe and secure area. Never turn chemical feed pumps ON when both flow cell valves are closed. The feed lines will blow off and spray full strength chemicals on you or anyone near the equipment*

SAVE THIS INSTRUCTION GUIDE!

WARRANTY

STA-RITE INC. warrants the SR6000S to be free from defects in manufacturing and workmanship for a period of Three (3) YEARS from the date of manufacture for the electronic module. All sensors and flow cells have a warranty of one (1) year. Other equipment is covered by manufacturer's own warranty. During the warranty period, any defective parts will be repaired or replaced when necessary by Sta-Rite.

This warranty does not cover: (a) the buyers' labor or any servicing fees related to replacement of the Product; (b) damage resulting from the use of this Product in other than its normal manner; (c) damage from misuse, accident or neglect; (d) damage from improper testing, operation, or installation; (e) not operating the Product on a dedicated (separate) circuit or under conditions other than those recommended or at voltages or amperages other than the voltage or amperage indicated on the Product; and (f) acts of Mother Nature (i.e. lightning, electrical storms, floods, etc.). In addition, attempting to service or modify the Product will render this Warranty Void. Defective parts should be returned immediately to the local Sta-Rite dealer, any parts returned to the factory require a return of material authorization code.

WARRANTY CARD MUST BE COMPLETED AND RETURNED AT ONCE.

1.0 SR6000S OVERVIEW

Sta-Rite, the technological leader in swimming pool automation, congratulates you on your selection of the SR6000S swimming pool controller. The SR6000S is specifically designed to be easy to use and install while meeting the needs of the most demanding applications.

Some of the more outstanding features include:

SUMMARY: The **SR6000S** is an automation system capable of continuous monitoring and control of water chemistry.

PROGRAMMABLE FEATURES: Programmable chemical feed cycle on and off times, set points that specify the pH and ORP set points, selection of pH acid or base feed, off at set point, off if no flow, overfeed and password protection.

DISPLAY: The **SR6000S** includes two (2) digital displays with three (3) decimal points each. These displays are visible from distance of over twenty (20) feet and are visible at night.

LED: The **SR6000S** uses five (5) indicator LED's including Flow, ORP Alarm, ORP Feed, pH Alarm and pH Feed.

BUTTONS: The **SR6000S** includes five (5) buttons for accessing and changing all parameters.

MEMORY: In case of power loss the **SR6000S** shall retain all programmed values. The values are protected for at least five (5) years without having power applied.

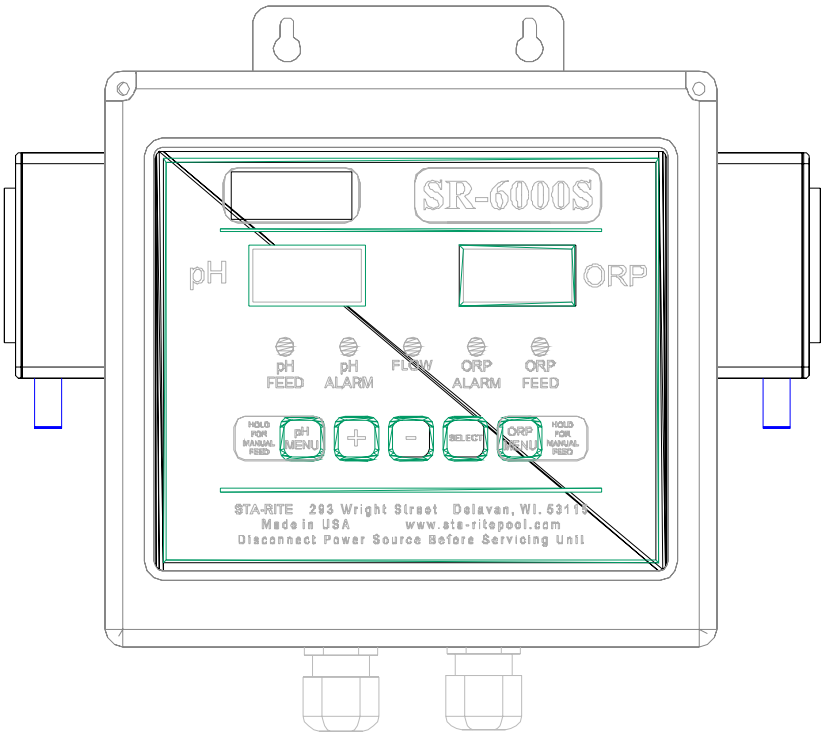
SECURITY: The SR6000S has a password feature to disable the buttons remotely and on sight.

ALARMS: If the pH or ORP is more than 5% away from set point for 10 minutes or more the SR6000S will light the LED alarm LEDS.

BUILT IN CHEMICAL FEEDERS: Two 24 volt chemical feed pumps are built onto the sides of the SR6000S for ease of use and installation.

SENSORS: The **SR6000S** directly measures pH and ORP. Each sensor has its own isolated circuitry for direct measurement, without the need for addition hardware of electronics.

VOLTAGE: The **SR6000S** includes a selector switch to select the input voltage of 110 or 220 VAC (single or two phase). Both the line and neutral voltages are fused at 5A; the relay power is routed through a 1A fuse.



1.1 MODEL SR6000S

The **SR6000S** is a chemical controller capable of maintaining water quality, by monitoring the ph and ORP of a water source and by automatically feeding chemicals with two built-in feed pumps. The chemical levels are tightly controlled with timed feed cycles. To prevent overshoot the feed time has a 5% proportional adjustment. At 5% away form set point the feed pump will be a maximum feed time. Within 5% of set point the feed time will decrease linearly as set point is approached.

1.2 INTRODUCTION

The **SR6000S** ***INSTALLATION AND OPERATION MANUAL*** explains the procedures for proper installation and operation of the **SR6000S** series controller. Chapter two (2) the **Installation** section, introduces the parts of the controller and the process to follow when installing the electrical and plumbing portions. Chapter three (3) the Programming and Operation, describes all the available functions of the controller, from navigating to initializing the **SR6000S**.
If there are any questions after reading this manual, please contact your local **Sta-Rite** dealer or **Sta-Rite** directly.

1.3 IMPORTANCE OF WATER MAINTENANCE

The **SR6000S** will effectively maintain the bacteriological and physiological requirements of state and local **Health Departments**. In addition, the **SR6000S** helps to protect the equipment from the effects of improper water balance.

The **National Swimming Pool Foundation** recommends the following guidelines for chemical automation, (local health codes may differ):

Filtration – Minimum turnover rate of six (6) hours for a pool and thirty (30) minutes for a spa.

Water Balance – pH 7.2 – 7.6, alkalinity 80-120 PPM.

Oxidation Reduction Potential (ORP) – A minimum 650 mV to maximum 750 mV the preferred.

Total Dissolved Solids – Should not exceed 2000 PPM.

2.0 INSTALLATION PROCEDURES

Listed below are the instructions and information necessary to install your SR6000S chemical controller system.

2.1 INSTALLATION PREPARATION

As soon as the controller is received, check the shipping carton carefully for damage and report any directly to the shipping company. Use care when unpacking equipment to avoid damage or loss of small parts. Go through the shipping list and if anything is missing, please contact your local Sta-Rite dealer.

- The **SR6000S** is a simple product to install and begin using. Mapping out connections prior to installation is recommended. The location of the SR6000S must be optimized for both electrical and plumbing connections.
- Sta-Rite sends the **SR6000S** from the factory set to the 110 VAC supply power, in order to simplify installation.

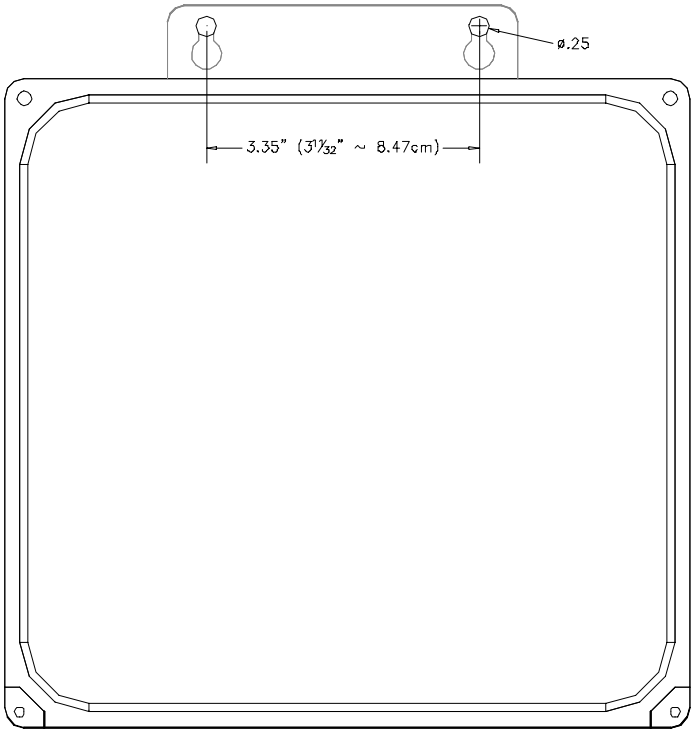
2.2 MOUNTING THE SR6000S

Select a location for **mounting the SR6000S**, meeting the following recommendations:

At least ten (10) feet from open water.
Close enough for the supplied power cord to reach the supply voltage. The controller will not operate properly without a solid earth ground connection. WARNING: *Proper and safe operation requires an earth ground connection.*
Supply power must be routed to the SR6000S in accordance with the applicable codes in the area; the supplied cord is not code in some areas.

WARNING: Keep the SR6000S out of direct sunlight and if possible inside a room, a shade screen must be used for outdoor installations.
The installation surface must be solid and vertical. Do not mount the controller in a horizontal position.
Maintain adequate clearance for opening the enclosure.
The environment should be free of chemical fumes and excessive heat. The maximum room temperature is 110 ºF.
Mount as far as possible from sources of electrical interference.

Hold the controller against the mounting surface with a closed lid and mark the four (4) holes located in the top and bottom brackets connected to the controller. Prepare holes as necessary and secure controller. Make sure the controller box is not distorted by an uneven mounting surface.

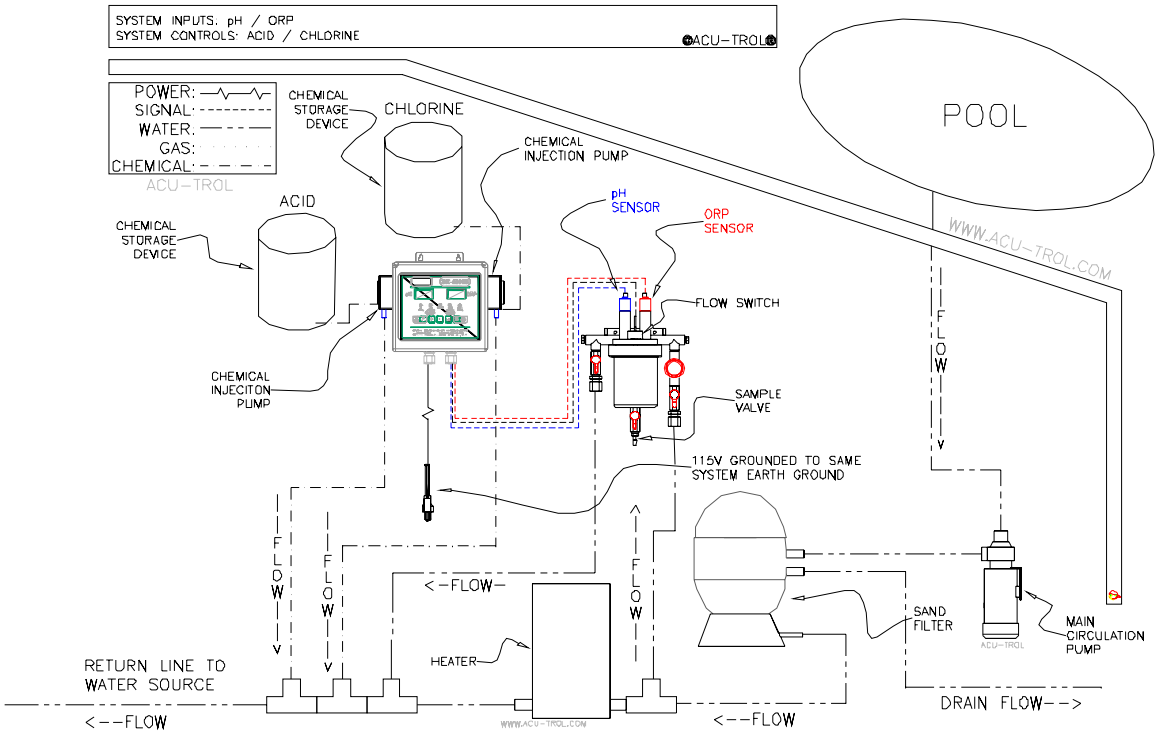


2.3 PLUMBING INSTALLATION

Mapping out the **plumbing installation** is recommended since there can be variations to the installation of the sensors and chemical feed equipment. This section gives the basic principles to be applied for any specific installation, which are listed as follows:

Identify the new and existing equipment to be connected.
When controlling chemicals locate a location for the AK1200 flow cell (if purchased.)
Determine the water-tap points for the bypass inlet and outlet.
Install the bypass.
Install the pH and ORP sensors.
Test the plumbing for leaks.

WARNING: *BE SURE TO HAVE A LICENSED PLUMBER PERFORM ALL PLUMBING; THIS IS IMPORTANT, AS THEY WILL BE FAMILIAR WITH ALL THE CODES IN THE LOCAL AREA.*



2.4 FLOW OR PRESSURE SWITCH

It is mandatory to use a **flow or pressure switch** to prevent the **SR6000S** from feeding chemicals if the main pump is OFF. The switch must be open when there is no flow and closed when there is flow. **Note:** The **AK1200** flow cell has a built in flow switch that protects against feeding chemicals in a NO flow condition by quickly detecting no flow in the system.

***WARNING:* WHEN USING ANYTHING OTHER THAN STA-RITE SWITCH DEVICES, THE FLOW SWITCH MUST NOT SUPPLY ANY VOLTAGE TO ANY SWITCH INPUTS OR DAMAGE MAY OCCUR, WHICH IS NOT COVERED BY THE WARRANTY.**

2.5 ELECTRICAL SPECIFICATIONS

The following **electrical specifications** in the table below must not be exceeded.

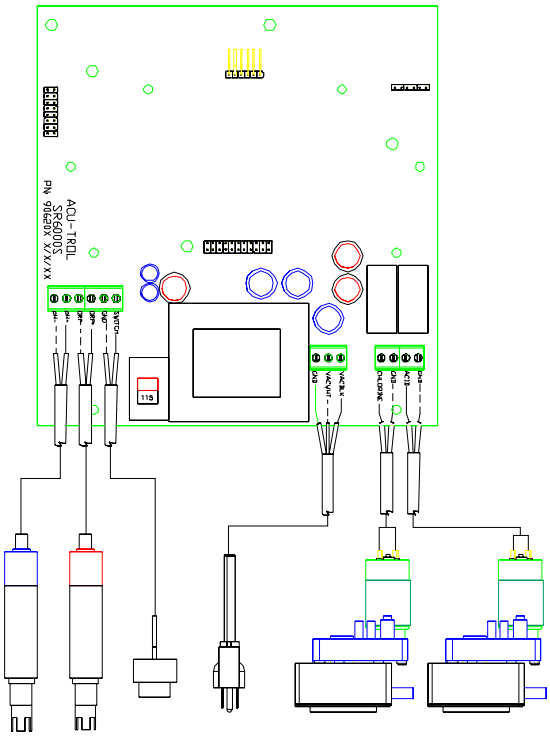
ITEM	DESCRIPTION	LIMIT
Input Voltage	Maximum Input AC Voltage	250 VAC
Input Current	Maximum Current	5 Amps (AC)
Temperature	Minimum/Maximum Operating Temp	30-110 ºF
Standby Current	Current with all relays OFF, LED ON Current with all relays OFF, LED OFF	90 mA (AC) Typical 65 mA (AC) Typical
Sensor Range	Relays –pH ORP	4.2 – 9.8 pH units 0 – 999 MV

2.6 ELECTRICAL INSTALLATION

Each **electrical installation** for the SR6000S can be different. This manual gives the basic principles to be applied for any specific installation as follows:

Identify the new and existing equipment to be connected.
Determine the supply voltage, 110 VAC or 220 VAC.
Determine the SR6000S mounting location, away from direct sunlight.
Connect the supply voltage.
Test the equipment, using the SR6000S manual feed.

WARNING: Be sure to have a licensed electrician perform all electrical wiring this is important, as they will be familiar with all the codes in the local area.



2.7 SENSORS

Each **sensor** has its own unique circuitry that is connected directly to the micro-controller for direct measurement. The pH and ORP sensors are isolated from each other and from the input power. The **SR6000S** measures the following sensor measurements with the listed characteristics:

1. pH Isolated input, range is 4.22 to 9.78, ±0.02. This measurement is temperature compensated.
2. ORP Isolated input, range is 0 to 999 mV, ±1mV.

3. Flow Switch (1 input). This input measures if a switch is open or closed.

4. WARNING: Sensors are shipped with a PVC Cover covering the electrode tip to protect the sensing element. Sensors should be kept in the protective cap until ready for installation, if the cotton in the boot becomes dry, wet it with tap water. During shipment, air bubbles may have entered the electrode, carefully shake the electrode downward (like a thermometer) to dispel the air from the sensing elements inside the electrode. **Before using the sensor, remove the boot**

2.8 pH AND ORP ELECTRODES

pH electrodes sense the acidity of the water and work with any acid or base. The blue bands on the cables identify the pH probes. Each probe is also identified on the probe body.

ORP electrodes are used to monitor the Oxidation-Reduction Potential (sanitization quality of the water) of a given solution. The sensing element of the ORP electrode is made of a precious metal such as platinum or gold. The red bands on the cables identify ORP probes.

2.9 ELECTRODE CARE

Contamination of the sensing elements often results in slow response and inaccurate readings. Clean the elements by the following procedures:

Wash electrode tip in a liquid detergent and water. Carefully use a soft bristled toothbrush to wash the electrode tip and white sensing ring.
Rinse after cleaning.
Swirl tip in a 5 parts water 1 part muriatic acid solution for 10 - 20 seconds.
Rinse again and reinstall.
To install, place in flow cell according to the diagram and hand tighten.
Make sure the O-ring is installed on probe.
If the cable is longer than needed, it should be coiled neatly and attached under the cabinet.
WARNING: DO NOT RUB HARD ON THE ELEMENT OR TRY TO SAND OR POLISH THE SENSING ELEMENT WITH SAND PAPER OR OTHER POLISHING MATERIAL!
Do not under any circumstances cut or shorten sensor wire.

HANDLE ELECTRODES CAREFULLY. ELECTRODES CONTAIN EXTERNAL AND INTERNAL GLASS ELEMENTS. DO NOT DROP OR OTHERWISE SUBJECT THE ELECTRODES TO MECHANICAL SHOCK. ANY TYPE OF BREAKAGE IS NOT COVERED UNDER WARRANTY. PROBES ARE GUARANTEED FOR 12 MONTHS FROM PURCHASE. IF A PROBE PROVES TO BE DEFECTIVE, PLEASE RETURN IT TO THE FACTORY AT ONCE WITH A DESCRIPTION OF THE MALFUNCTION.

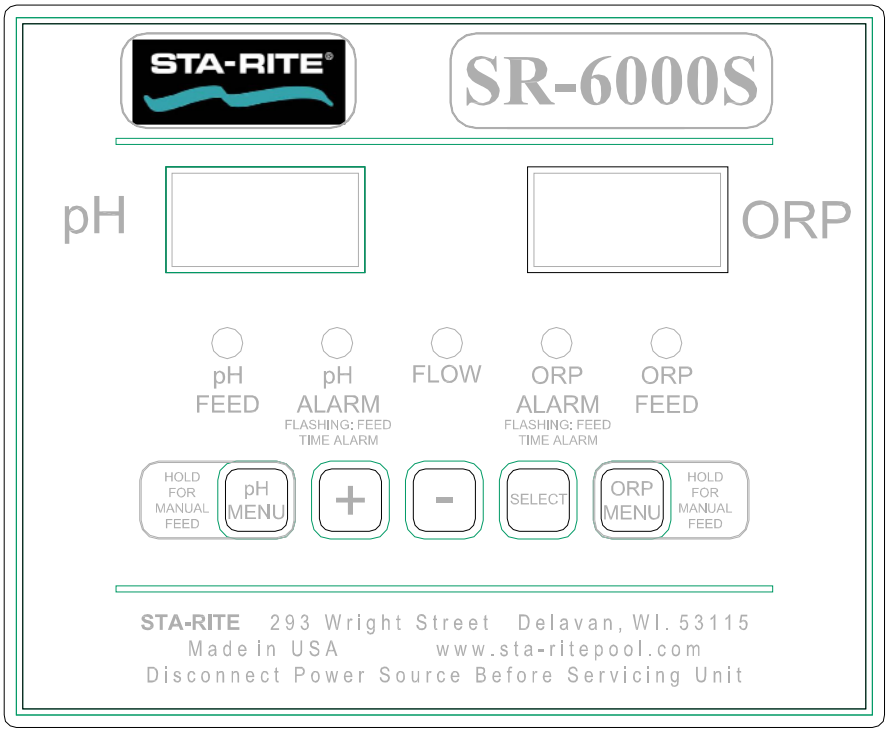
2.10 FINISHING AND TESTING

For the final step, follow the steps below **finishing and testing** the sensors and feeders.

1. Route the sensor wires through the small strain relieves into the SR6000S and install them into the appropriate connectors in the control board.
2. Wire the sensors to the SR6000S. The polarity (+ and -) of the pH and ORP sensors must be observed. The ORP sensor (+) is color-coded red and the pH sensor (+) is color-coded blue, the green leads are (-) polarity. **Do not cut the sensor wires**.
3. After the wiring is complete, close the panel and tighten the screws. Leave excess wire outside of controller box. **Do not stuff excess wire inside the controller.**
4. Turn the power ON to the SR6000S.
5. Calibrate the probes with the system water at pH and ORP set points, then recalibrate as the probes acclimate to the pool.
6. Visit the SR6000S over next few days to check the calibration and tune if necessary. NOTE: try to check the calibrations at the same time of day as when they were previously performed. Don't re adjust calibration unless pH is more than +/- 0.5 off or ORP is more than +/- 5 off.

3.0 OPERATION OF SR6000S

The following information describes the operation and functions of the SR6000S controller.



3.1 INTRODUCTION

The SR6000S is a programmable controller for swimming pools and spas. This programming guide introduces and describes all of the available menus of the SR6000S, from navigating and initializing the system. Please read carefully and take notice of all **WARNINGS** and **Notices** to ensure safe operations. If there are any questions after reading through this guide, please call your local STA-RITE dealer or call STA-RITE directly.

3.2 LED SUMMARY TABLE

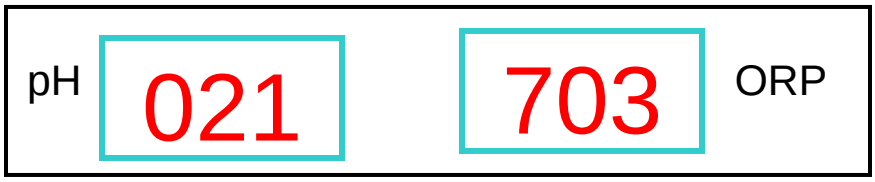
The SR6000S has five LED to indicate various conditions these conditions are explained in detail throughout the manual. The table below summarizes all of the possible LED states and there meaning.

pH Feed	pH Alarm	Flow	ORP Alarm	ORP Feed	CONDITION INDICATED
		●			Flow is detected through switch input.
●		●			We have flow and pH pump is feeding.
		●		●	We have flow and ORP pump is feeding.
●		●		●	We have flow and both pH and ORP pumps are feeding.
●	●				We are in ph Menu.
			●	●	We are in ORP Menu.
●	●	●	●	●	We are in Advanced Menu.
	●				pH is in Alarm.
	✸				1 second flash means pH pump is in overfeed.
			●		ORP is in Alarm.
			✸		1 second flash means ORP pump is in overfeed.

LED SUMMARY TABLE

3.3 INITIALIZING THE SR6000S

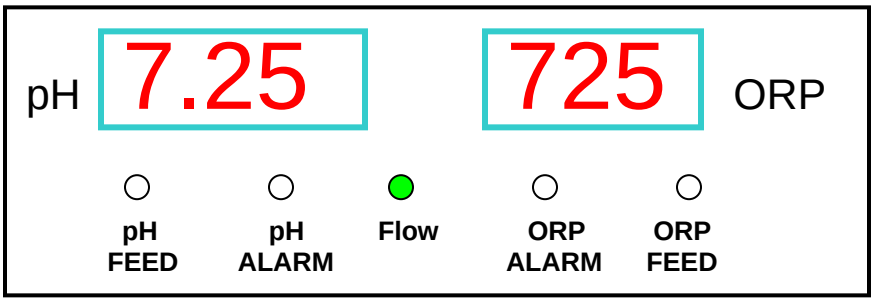
When initializing/turning on the SR6000S, it will perform a brief check of its internal system and check its memory for operation. It will also display the date code for the version of software that the system is currently using. (As listed below the software version is dated 02 17 03, or Feb 17, 2003.)



Note: When contacting **Sta-Rite** for technical support be sure to have this information available to give to them.

3.4 READING DISPLAY

During normal operation the reading display will show the actual values of pH and ORP in the water source as sensed by the probes. It will also show if and which of the chemical controller pumps should be feeding by lighting a Green LED. If there is an alarm condition that will be displayed with a Red LED and Green flow LED shows whether the system has water flow or not.



Reading Display

Under normal conditions if the pH or ORP ALARM LED is on steady it means that the reading is more than 10% from set point. A flashing red LED means that the Overfeed time limit has been exceeded and the feed pump is being kept off.

3.5 MANUAL FEED

At any time you can press and hold the pH menu button for approximately 2 seconds to start or stop pH feed pump. The pH feed pump should begin working and run for the same time set for Cycle time.

The ORP feed pump can be exercised in the same manner with the ORP menu button.

3.6 PH AND ORP MENU ITEMS

The pH and ORP menus offer the same choices for setup of feed pump operation. To access the pH menu simply press the pH MENU button. When the pH menu is active both the pH FEED LED and pH ALARM LED will be lit, all other LEDs will be off. To access the ORP menu press the ORP MENU button. When the ORP menu is active both the ORP FEED LED and ORP ALARM LED will be lit, all other LEDs will be off. Both pH and OPR menus have the same 5 choices outlined below.

1. **Set Point value (StP):** Sets the value that you would like the controller to maintain the pH or ORP levels.
2. **Cycle time (CyC):** The time that you want a feed pump on/off cycle in seconds.
3. **On Limit (OnL):** Sets the maximum time that you want the controller to be "on" during the cycle time in seconds. This allows you to have a minimum off time before the beginning of the next cycle.
4. **Calibration (CAL):** Lets you calibrate the value of the sensor probe to match a hand check reading.
5. **Overfeed time limit (OFL):** Allows you to set the maximum amount of time that the feeder will be allowed to be on during a 24-hour period in hours.

Note: Both the pH and the ORP menus are independent so each will need to be set up individually.

Also after making changes to the any of the above values you can either return to the readings display by scrolling through the remaining menu items until you return to the

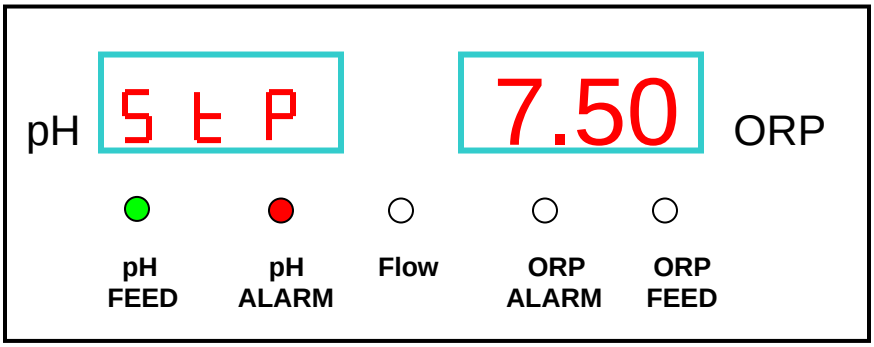
readings display or if you do not press any buttons for approximately 30 seconds the unit will automatically return to the reading screen. A short cut method is to press the other menu key once to instantly exit a menu back to the readings display.

3.7 PH / ORP SET POINTS

Press the pH menu button; the reading that will be displayed is the pH set point value. The set point value is the level at which you would like the controller to maintain the pH level. Press either the + or – button to raise or lower the value that you would like the pH value to be.

Note: the same process is used using the ORP menu to set the ORP set point value.

Note: Changes in values are immediate and do not need to be saved as a separate step.

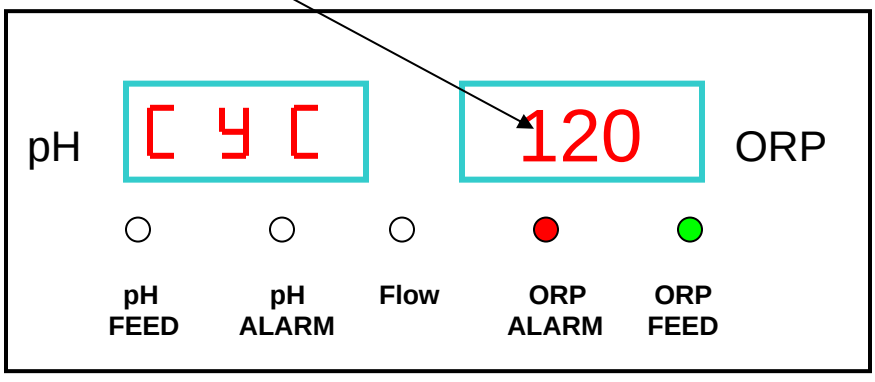


pH Set Point Display

3.8 CYCLE TIME

Pressing either the pH or ORP Menu buttons twice lets you set the maximum time that you want the controller to complete a full on/off cycle. Pressing the + button will increase the time value and pressing the - will decrease the time value that you want to set. (Pressing the + or – buttons momentarily will increase or decrease the time values one (1) second at a time. Holding down the + or – button it will increase or decrease the time by ten (10) second increments.)

Note: The time is set in seconds. The maximum value for cycle time that you can input is 900 seconds. (15 minutes).



ORP Cycle Time Display

Note: The Cycle time and On time Limits are tied together; you are not allowed to make cycle time shorter than the On time Limit and you can not increase the On Time Limit longer than the Cycle time. Depending on which one that you are increasing or decreasing the other may increase or decrease with it.

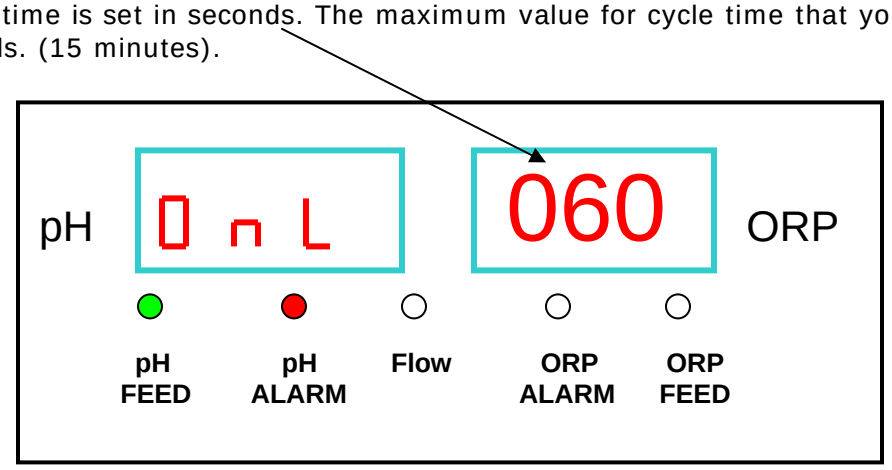
Examples: 1. If "Cycle time" is 600 seconds and you tried to increase "On time Limit" to 720 seconds the "Cycle time" would automatically increase to 720 seconds.

2. If "On time Limit" was set for 120 seconds and you decreased the "Cycle time" to 60 seconds; the "On time Limit" would automatically change to 60 seconds.

3.9 ON TIME LIMIT

Pressing either the pH or ORP Menu buttons three times lets you set the maximum time that you want the controller to be "on" during the cycle time. This allows you have a minimum off time before the beginning of the next cycle. For example, if you have a Cycle Time of 12 seconds and an On Time Limit of 5 seconds the minimum off time would be 12 – 5 = 7 seconds. Pressing the + button will increase the time value and pressing the - will decrease the time value that you want to set. (Pressing the + or – buttons momentarily will increase or decrease the time values one (1) second at a time. Holding down the + or – button it will increase or decrease the time by ten (10) second increments.)

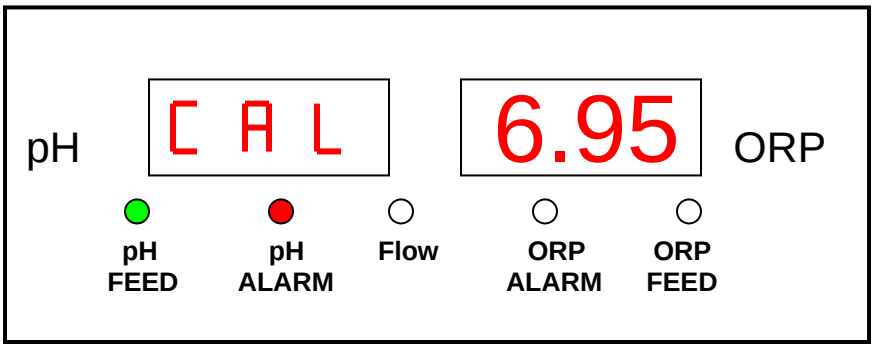
Note: The time is set in seconds. The maximum value for cycle time that you can input is 900 seconds. (15 minutes).



pH On time Limit Display

3.10 CALIBRATION

Lets you set the calibration value of the sensor probe to match the values of your hand check tests. Use the + and – buttons to set.



pH Calibration Display

3.11 CALIBRATING PH

Note: A chemical test kit must be purchased separately and utilized for calibration.

Note: IF THE pH IS BELOW 7.4 OR ABOVE 7.6 THE ORP READINGS WILL BE SIGNIFICANTLY AFFECTED. If the pH is high, the ORP will not go up as fast as it should when chlorine is added. This can lead to chlorine overfeeding. If the pH is low, the chlorine will be very active and hard to manage with ORP control.

Measure the pool water pH using a standard hand measurement test kit. To calibrate the pH sensor press the pH menu button until you see the pH **'CAL'ibration** window (as shown above). Enter the current hand calibration measurement values by pressing on the + button to increase the value and press the – button to decrease the value.

3.12 CALIBRATING ORP

WARNING: The pH MUST be at set point, the pH calibration (explained above) MUST be complete and the pH feed pump should be operating normally and maintaining a constant pH before calibrating ORP.

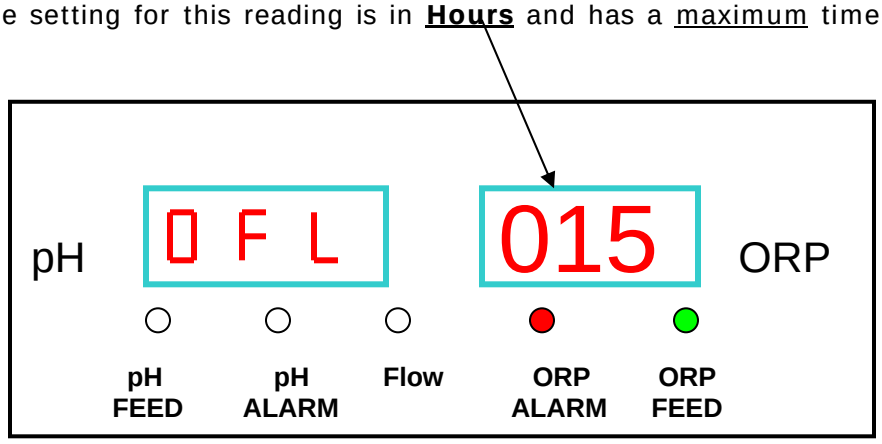
To calibrate the ORP sensor: Hand feed Cl into the pool until the PPM level is at the desired control point. Make sure your ORP set point is set. Measure the pool water PPM Cl using a standard hand measurement test kit. Wait until the pH feed pump has stopped feeding and pH is at set point. Now calibrate the ORP sensor by pressing the ORP menu button until the display has **CAL** in the left window, calibrate the ORP reading to match the ORP set point by pressing on the + button to increase the value and press the – button to decrease the value.

NOTICE: *The pH must be between 7.4 and 7.6 when calibrating the ORP sensor. (See 'Calibrating pH, above). If the pH is outside of these limits when calibrating the ORP sensor, the chlorine feed and the ORP reading may be incorrect.*

3.13 OVERFEED TIME LIMIT

The Overfeed Time Limit allows you to set the maximum amount of time that a feeder will be allowed to be on during a 24-hour period. The time is accumulative over the period of the day and will be reset to zero once in any 24-hour period or when the unit is powered on and off.

Note: The time setting for this reading is in **Hours** and has a maximum time limit of 23 hours.



ORP Overfeed Time Limit Display

To set the pH Overfeed Limit press the pH menu button five times. Then press the + button to increase the Limit time or press the – button to decrease the time. To change the ORP Overfeed limit press the ORP menu button five times. Then press the + button to increase the Limit time or press the – button to decrease the time.

4.0 ADVANCED MENU

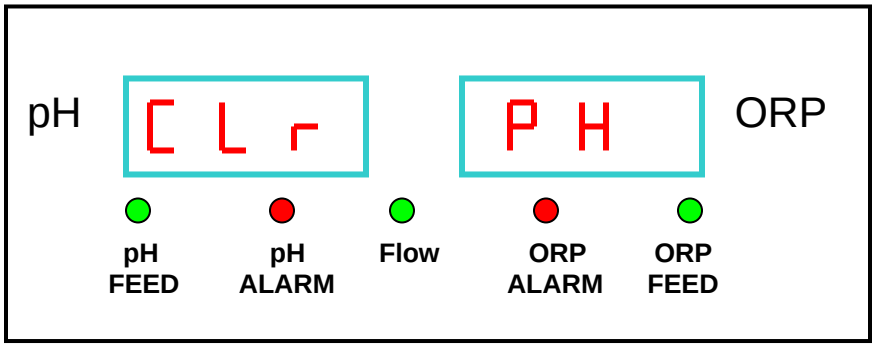
Under normal operating conditions you should not need to go into the advanced menus. If you do need to access the advanced menus press both the + and – buttons simultaneously. (When in the advanced menu all five of the LED 's will turn ON.)

While in the advanced menu you can scroll through the readings by pressing the **ORP MENU** button. The menu items that can be accessed and changed are:

1. **Clear pH (CLr PH):** Clears the ph calibration back to factory default.
2. **Clear ORP (CLr OrP):** Clears the ORP calibration back to factory default.
3. **Acid(Acd) or Base(bAS):** Allows you to select either Acid feed or Base feed for the pH chemical feed pump.
4. **Set Password (Spd):** Allows you to set a password code to control access to the menu displays. Once a password is set access to all except the readings screen will be blocked until this set password is entered.
5. **Reset ALL (RSt ALL):** Resets ALL programming and settings to factory defaults.

4.1 CLEAR PH

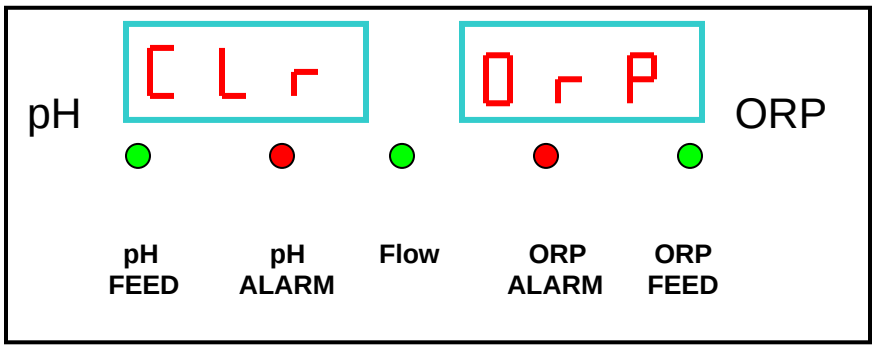
This menu allows you to clear the ph calibration back to factory default. In order to reset the ph calibration value press the SELECT button and you will see the display that is showing the PH change to "**yES**" so that you will know that the value has changed.



Clear pH Calibration Display

4.2 CLEAR ORP

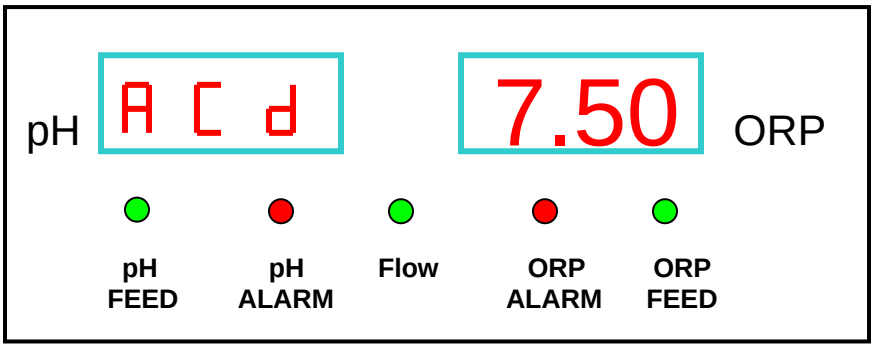
This menu allows you to clear the ORP calibration back to factory default. Press the ORP MENU button once. In order to reset the ORP calibration value press the SELECT button and you will see the display that is showing the PH change to "**yES**" so that you will know that the value has changed.



Clear ORP Calibration Display

4.3 ACID OR BASE SELECT

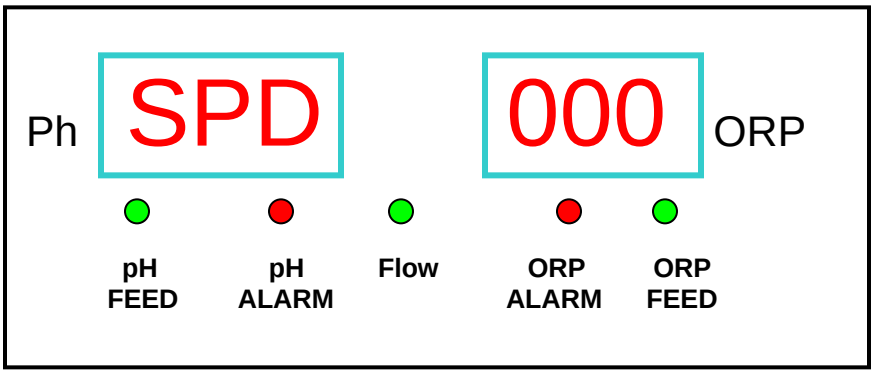
This menu allows you to select either ACID or BASE feed mode for the pH feed pump. In ACID mode the pH feed pump will start feeding when pH reading is above set point. In BASE mode the pH feed pump will start feeding when pH reading is below set point. To change the mode press the SELECT button and you will see the mode change. The current pH set point is displayed in the right display.



Acid Select Display

4.4 SET PASSWORD

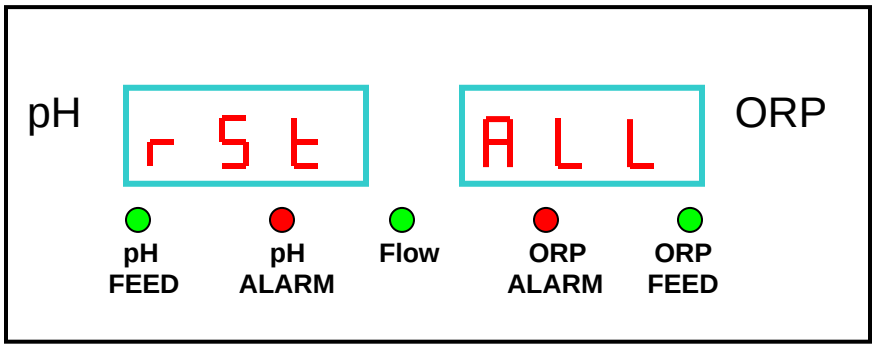
The forth item in the Advance Menu is Set Password. The password can be any number between 0-999. To enter the number you want press the + button to increase the number and press the – button to decrease the password number. The moment any number other than zero is entered password protection will be enabled. When password protection is enabled you will have to enter this password number to make any changes or view menus other than the readings display on the controller.



Set Password Display

4.5 RESET ALL

Resets ALL programming and settings to factory defaults. To perform a reset press the SELECT button and you will see the display that is showing the ALL change to “yES” so that you will know that the reset has occurred.



Reset ALL Display

5.0 TROUBLESHOOTING

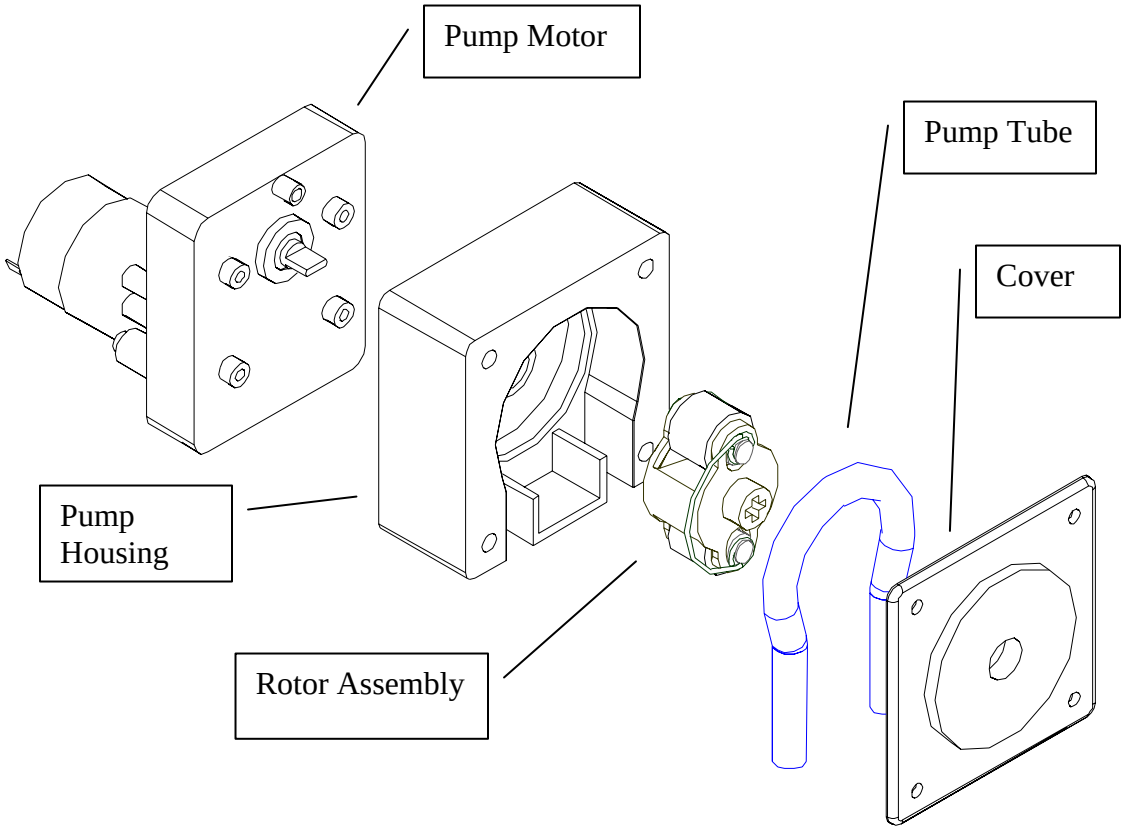
This section lists common problems with the most likely solution. For other problems please contact STA-RITE’s technical support.

Part	Problem	Solution # 1	Solution # 2
Alarm LED	Alarm LED ON	Increase ON time if	Check for empty Chemical
		Below set point	Tanks
			Feed Pump tube is old
Flow	Flow Cell magnet will not go up	Clean Filter	Backwash main filter
ORP / pH Probe	Readings Bouncing	Clean Probe	Check water flow
Flow Switch	Not Working	Check for magnet	Check wiring
Overfeed Alarm	Overfeed alarm ON	Chemical Tank empty	Feed Pump tube is old
		Greater than normal usage	

Sensors	Readings Not Changing	Make sure (+) and (-) wires	
		are connected correctly	
	Can not get into communication		
Computer	window with new version of	Reinstall Software	Verify installation of
	Microsoft software		threed.vbx files

Important: If any problems remain after reading the guides and troubleshooting procedures, please contact STA-RITE directly at 1-800 752-0183. Before calling please have the following items available.

1. The controller's model number.
2. The software version being used.
3. The type of modem and the speed you are using.
4. The controller's serial number.



CHEIMICAL FEED PUMP INTERNALS

If the system is underfeeding chemicals and the chemical storage tanks have been verified full it may be time to change out the feed tube in the pump. Contact STA-RITE for parts.

WARNING! Used extreme caution while working on chemical feed lines. Wear protective equipment to protect the eyes, face, and hands from chemical spray!

5.1 PUMP MAINTENANCE

The pump is a mechanical device and will require maintenance over time. In general it is a good practice to replace pump tubes every 6 months. If flow decreases noticeably, check pump tubes for deterioration. The pumps are manufactured with the pump tubes pre-lubricated THEY SHOULD NOT NEED EXTRA LUBRICATION! If lubrication should become necessary, use a high grade silicone-based grease. **DO NOT** lubricate the pump tube with petroleum based lubricants. These will cause pump tube failure!

5.2 PUMP TUBE REPLACEMENT

To replace a pump tube, follow the procedure below.

1. Turn off power to SR6000S.
2. Remove chemical supply and injection tubing from ¼" fittings. WARNING these lines maybe pressurized wear protective equipment to protect the eyes, face, and hands from chemical spray! Use caution when disconnecting lines!
3. Remove the lower left and upper right 1-5/8" screws from the pump cover to remove the pump from the SR6000S.
4. Remove the remaining two 1-1/4" screws from the pump cover. Lift on cover lip and snap cover off of the pump housing.
5. With touching the spring remover pump rotor assembly.
6. Remove tube from pump housing by working loose the tube stems from the housing.
7. Install new tube, making sure tube stems are locked into housing tube stem collars. DO NOT put any twists in the tube during installation.
8. With high grade silicone-based grease lubricate the housing hole and the cover hole for the rotor assembly shaft, and wherever rollers touch the pump tube.
9. Install rotor assembly by pressing roller against tubing at the top of the pump housing.
10. Seat rotor shaft in pump housing hole.
11. Snap pump cover in place over rotor and housing and install two 1-1/4" screws in upper left and lower right. DO NOT over tighten!
12. Using a large bladed screwdriver placed in the "X" on the top of the rotor shaft, turn the rotor assembly to see that pump is moving properly.
13. Place pump on dispenser motor shaft so that motor shaft mates with pump rotor. Rotate pump (NOT motor shaft) so that upper right and lower left pump cover screw holes align with holes in SR6000S.
14. Install lower left and upper right 1-5/8" screws from the pump cover to the SR6000S. DO NOT over tighten!
15. Reinstall chemical supply and injection tubing to the ¼" connections on the pump.

5.3 MAXIUM CHEMICAL CONCENTRATIONS

This pump is designed only for use as a pool or SPA chemical feeder. Maximum recommended concentrations of chemicals are listed in the table below.

CHEMICALS	MAXIMUM CONCENTRATION
Aluminum Sulphate	12%
Calcium Hypochlorite	2%
Sodium Carbonate	5%
Sodium Hydroxide	10%
Sodium Hypochlorite	12.5%
Enzymes	80%

6.0 APPENDIX B: CHEMICAL STANDARDS

The National Spa and Pool Institute's Suggested chemical Standards for Swimming Pools and Spa's.

Table for Pools	*Minimum*	*Ideal*	*Maximum*
Free Chlorine, PPM	**1.0**	**1.0 - 3.0**	**3.0**
Combined Chlorine, PPM	**None**	**None**	**0.2**
Bromine, PPM	**2**	**2.0 - 4.0**	**4.0**
pH	**7.2**	**7.4 - 7.6**	**7.8**
Total Alkalinity, PPM	**60**	**80 - 100***	**180.0**
TDS, PPM	**300**	**1000 - 2000**	**3000.0**
Calcium Hardness, PPM	**150**	**300 - 400**	**500 - 1000+**
Cyamuric Acid, PPM	**10**	**30 -50**	**150****

- For Liquid chlorine, Cal Hypo, and Lithium Hypo (for Gas Chlorine, Dichlor, Trichlor, and Bromine compounds 100 – 200 is ideal).

** Except where limited by Health Departments requirements, (often to 100 PPM).

Table for Spa's	*Minimum*	*Ideal*	*Maximum*
Free Chlorine, PPM	**1.0**	**3.0 - 5.0**	**10.0**
Combined Chlorine, PPM	**None**	**None**	**0.2**
Bromine, PPM	**2.0**	**3.0 - 5.0**	**10.0**
pH	**7.2**	**7.4 - 7.6**	**7.8**
Total Alkalinity, PPM	**60**	**80 - 100***	**180.0**
TDS, PPM	**300**	**1000 - 2000**	**3000**
Calcium Hardness, PPM	**150**	**200 - 400**	**500 - 1000+**
Cyamuric Acid, PPM	**10**	**30 - 50**	**150****

- For Liquid chlorine, Cal Hypo, and Lithium Hypo (for Gas Chlorine, Dichlor, Trichlor, and Bromine compounds 100 – 120 is ideal).

** Except where limited by Health Departments requirements, (often to 100 PPM).